

Portal Technologies and Executive Information Systems Implementation

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INTRODUCTION

Portals may be seen as World Wide Web (“the Web”) sites that provide the gateway to corporate information from a single point of access. The potential of the Web portal market and its technology has inspired the mutation of search engines (e.g., Yahoo!) and the establishment of new vendors (e.g., Hummingbird and Brio Technology). Leveraging knowledge, both internal and external, is the key to using a portal as a centralised database of best practices that can be applied across all departments and all lines of business within an organisation (Zimmerman, 2003). A portal is simply a single, distilled view of information from various sources. Portal technologies integrate information, content, and enterprise applications. However, the term portal has been applied to systems that differ widely in capabilities and complexity (Smith, 2004). Portals “aim to serve particular communities, including various business groups” (Deise, Nowikow, King, & Wright, 2000). A portal aims to establish a community of users with a common interest or need.

Portals include horizontal applications such as search, classification, content management, business intelligence (BI), executive information systems (EIS), and a myriad of other technologies. Portals not only pull these together, but also absorb much of the functionality from these complementary technologies (Drakos, 2003). When paired with other technologies such as content management, collaboration, and BI, portals can improve business processes and boost efficiency within and across organisations (Zimmerman, 2003). Given the overlap between portal technologies and EIS, this article investigates the level of impact (if any) between them.

BACKGROUND

Gartner defines a portal as “access to and interaction with relevant information assets (information/content, applications, and business processes), knowledge assets and human assets, by select target audiences, delivered in a highly personalized manner” (Drakos, 2003). Drakos (2003) suggests

that a significant convergence is occurring with portals in the centre. Most organisations are being forced to revisit their enterprise-wide Web integration strategies (Hazra, 2002). A single view of enterprise-wide information is respected and treasured (Norwood-Young, 2003). Enterprise information portals are becoming the primary way in which organisations organise and disseminate knowledge (PricewaterhouseCoopers, 2001).

Spoornet is southern Africa’s largest railroad operator and heavy hauler, with 3,500 locomotives moving approximately 180 million tons of freight annually. Securing a “comprehensive view of its [Spoornet’s] own complex logistics environment has long been a dream for management” (Norwood-Young, 2003). During October 2002, vendor Sybase implemented the first stage of a project providing an executive portal to Spoornet management. Norwood-Young (2003) reports that executive management “had a single view of Spoornet’s resources and applications—‘digital dashboard’” ... “Our executives waited for decades to be taken to such a high level of business functionality.” The portal is a technology in search of a business problem (Drakos, 2003). With EIS established in organisations in South Africa and the presence of portal technologies, there is, thus, a need to investigate the link (if any) between EIS and portal technologies.

EIS grew out of the development of information systems (IS) to be used directly by executives and used to augment the supply of information by subordinates (Srivihok, 1998). For the purposes of this article, EIS is defined as “a computerized system that provides executives with easy access to internal and external information that is relevant to their critical success factors” (Watson, Houdeshel, & Rainer, 1997). EIS are an important element of the information architecture of an organisation. Different EIS software tools and/or enterprise resource planning (ERP) software with EIS features exist. EIS is a technology that is continually emerging in response to managers’ specific decision-making needs (Turban, McLean, & Wetherbe, 1999). E. Turban (personal communication, October 7, 2001) suggests that EIS capabilities are being “embedded in BI.” All major EIS and information product vendors now offer Web versions of the tools designed to function with Web servers and browsers (PricewaterhouseCoopers, 2002).

Web-based technologies are causing a revisit to existing IT implementation models, including EIS (Averweg, Cumming, & Petkov, 2003). Web-based tools “are very much suited” to executives key activities of communicating and informing (Pijpers, 2001). With the emergence of global IT, existing paradigms are being altered, which are spawning new considerations for successful IT implementation (Averweg & Erwin, 2000). Challenges exist in building enterprise portals as a new principle of software engineering (Hazra, 2002). Yahoo! is an example of a general portal. Yahoo! enables the user to maintain a measure of mastery over a vast amount of information (PricewaterhouseCoopers, 2001). Portals are an evolutionary offshoot of the Web (Norwood-Young, 2003). The Web is “a perfect medium” for deploying decision support and EIS capabilities on a global basis (Turban et al., 1999).

SURVEY OF WEB-BASED TECHNOLOGIES' IMPACT ON EIS

Computer or IS usage has been identified as the key indicator of the adoption of IT by organisations (Suradi, 2001). As the usage of IT increases, Web-enabled information technologies can provide the means for greater access to information from disparate computer applications and other information resources (Eder, 2000). Some Web-based technologies include intranet, Internet, extranet, e-commerce business-to-business (B2B), e-commerce business-to-consumer (B2C), wireless application protocol (WAP), and other mobile technologies and portal technologies. The portal has become the most-desired user interface in Global 2000 enterprises (Drakos, 2003).

The technology for EIS is evolving rapidly and future systems are likely to be different (Sprague & Watson, 1996). EIS is now clearly in a state of flux. As E. Turban (personal communication, October 7, 2001) notes, “EIS is going through a major change.” There is, therefore, both scope and need for research in the particular area of EIS being impacted by portal technologies, as executives need systems that provide access to diverse types of information. As with any other IT investment, the use for a portal must be well understood (Drakos, 2003). Emerging (Web-based) technologies can redefine the utility, desirability, and economic viability of EIS technology (Volonino et al., 1995). There exists a high degree of similarity between the characteristics of a “good EIS” and Web-based technologies (Tang, Lee, & Yen, 1997). With the absence of research efforts on the impact of portal technologies on EIS implementations in South Africa, this research begins to fill the gap with a study of 31 selected organisations in KwaZulu/Natal, South Africa that have implemented EIS.

A validated survey instrument was developed and contained seven-point Likert scale statements (anchored

with (1) Not at all and (7) Extensively) dealing with how an interviewee perceives specific Web-based technologies impacted his organisation's EIS implementation. The Web-based technologies are: (1) intranet; (2) Internet; (3) extranet; (4) e-commerce: business-to-business (B2B); (5) e-commerce: business-to-consumer (B2C); (6) wireless application protocol (WAP) and other mobile technologies; and (7) any other Web-based technologies (for example portal technologies). The questionnaire was administered during a semistructured interview process. A similar approach was adopted by Roldán and Leal (2003) in their EIS survey in Spain. Pooling data across different technologies is consistent with prior research in user acceptance (see, for example, Davis, 1989; Venkatesh & Morris, 2000).

The sample was selected using the unbiased “snowball” sampling technique. This technique was also used by Roldán and Leal (2003). The sample selected included organisations with actual EIS experience, with representatives from the following three constituencies: (1) EIS executives/users; (2) EIS providers; and (3) EIS vendors or consultants. These three constituencies were identified and used in EIS research by Rainer and Watson (1995). A formal extensive interview schedule was compiled and used for the semistructured interviews. Interviews were conducted during May-June 2002 at the interviewee's organisation in the eThekweni Municipal Area (EMA) in South Africa. EMA is the most populous municipality in South Africa (SA2002-2003, 2002), with a geographic area size of 2,300 km² and a population of 309 million citizens (Statistics South Africa, 2001). The survey of organisations in KwaZulu/Natal that implemented EIS is confined to organisations in the EMA.

From the author's survey instrument, a wide range of different, available, commercially purchased EIS software tools and/or ERP software with EIS features used by the respondents in the organisations surveyed was reported. These included Cognos®, JDEdwards BI®, Oracle®, Hyperion®, Lotus Notes®, Business Objects®, and Pilot®. Cognos® was the most popular EIS software tool comprising 60% of the sample surveyed. In the USA, Cognos®, Business Objects®, and Oracle® have the highest top-of-mind awareness (Gartner, 2002). Gartner (2002) reports that in Europe, SAP®, MicoStrategy®, Business Objects®, and IBM® have highest top-of-mind awareness. Furthermore, Europe seems to focus more on full-solution vendors (for example IBM®, SAP®) than strictly EIS product-focused vendors. Drakos (2003) suggests that the portalisation of vertical applications, such as ERP, customer relationship management (CRM), and supply chain management (SCM), is driving multiple vertical portals into single enterprises.

From the survey instrument, a summary of data obtained of the degree to which specific Web-based technologies impacted the respondent's EIS implementation in the organisations surveyed, is reflected in Table 1.

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